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Patent
IBM Docket No. FIS920010260US1

REMARKS

Claims 1 to 22 are pending in the instant application. No claims have been amended by this Response Pursuant to 37 CFR §116.

Reconsideration of the Examiner's decisions and reexamination of this application are respectfully requested. Entry of this Response Pursuant to 37 CFR §116 is respectfully requested as the claims have not been amended.

Notice of Appeal:

Applicants are submitting herewith a Notice of Appeal appealing the final rejection of claims 1 to 22.

The §102 rejections:

Claims 1 to 4, 10 to 13, 19 and 20 have been rejected by the Examiner under 35 USC §102(b) as being anticipated by European Patent Application 0 870 854 (hereafter "EP '854").

It is submitted that the Examiner has failed to show that EP '854 recites every feature of Applicants' claims 1 and 12. In Applicants' claims 1 and 12, a first nozzle during a first pass sprays the cleaning agent to chemically and mechanically remove residual material while a second nozzle in a second pass sprays the cleaning agent to chemically and electrochemically remove the remaining residual material. As Applicants stated in their last response, Applicants' invention is

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distinguishable from EP '854 in several respects and their remarks will be supplemented to address the Examiner's remarks from the present Office Action.

First, Applicants' apparatus chemically and mechanically removes residual material and then chemically and electrochemically removes the remaining residual material. EP '854 electrocleans first and then rinses second. In the present Office Action, the Examiner indicates that the order of operations is irrelevant and, in any event, EP '854 discloses rinsing first and electrocleaning second. For the sake of argument, Applicants agree that the order of doing the operations is irrelevant but that is not the thrust of Applicants' argument. Applicants are claiming that the apparatus first sprays the cleaning agent to chemically and mechanically remove residual material and then chemically and electrochemically remove the remaining residual material. Again, EP '854 only discloses the apparatus rinsing and electrocleaning but does not disclose the apparatus spraying to chemically and mechanically remove residual material and then spraying to chemically and electrochemically remove the remaining residual material as claimed by Applicants.

Second, the action provided by nozzles 4 and 5 is merely rinsing the cleaning agent applied by nozzles 1 and 2. The "cleaning agent" provided by nozzles 4 and 5 of EP '854 apparently does not provide any chemical and mechanical removal of residual material as does Applicants' first spraying of the cleaning agent. In the present Office Action, the Examiner indicates that Applicants are addressing the intended use and further the Examiner notes that Figure 2 of EP '854 shows two sets of nozzles electrocleaning. Taking the Examiner's last comment first, Applicants are not claiming two sets of nozzles that electroclean. Rather, Applicants are claiming an apparatus that both chemically and mechanically removes residual material and chemically and electrochemically removes residual material. With respect to the Examiner's first argument, Applicants are not claiming an intended use. It is a requirement of Applicants' claims 1 and 12 that a voltage is applied by the apparatus during the electrocleaning step. The converse of this is that during the chemical and electrocleaning performed by the apparatus, it is not necessary to

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apply a voltage. That is, whether the apparatus does electrocleaning or not is a limitation of the apparatus (application of a voltage by the apparatus) and not merely an intended use.

Third, the cleaning agent (i.e., "the cleaning agent) is the same applied by both of the first and second nozzles in Applicants' invention whereas in EP '854 a cleaning agent (alkali solution) is first applied by nozzles 1 and 2 and then nozzles 4 and 5 apply rinsing water. In the present Office Action, the Examiner indicates that even though EP '854 discloses nozzles 1 and 2 applying a cleaning agent and nozzles 4 and 5 apply water, this distinction is not important because EP '854 otherwise meets the structural limitations of Applicants' claims 1 and 12. Applicants' respectfully disagree. The cleaning agent is an element of the apparatus. The apparatus uses the cleaning agent when the apparatus chemically and mechanically removes residual material as well as when the apparatus chemically and electrochemically removes residual material. Even though EP '854 has two sets of nozzles that use the same cleaning agent, these nozzles only do electrocleaning.

For all of the above reasons, EP '854 cannot anticipate Applicants' claims 1 and 12. Inasmuch as claims 2 to 4, 10, 11, 13, 19 and 20 depend from claims 1 and 12, and since claims 1 and 12 are believed to be patentable over the cited art, then claims 2 to 4, 10, 11, 13, 19 and 20 are believed to be patentable as well. No independent ground of patentability is asserted for claims 2 to 4, 10, 11, 13, 19 and 20 at this time.

The §103 rejections:

- I. Claims 5 and 14 have been rejected by the Examiner under 35 USC §103(a) as being unpatentable over EP '854 in view of Geissler et al. U.S. Patent 6,238,529 (hereafter "Geissler").

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The Examiner has failed to state a prima facie case of obviousness with respect to claims 5 and 14.

As Applicants explained above, EP '854 does not teach Applicants' invention as embodied in claims 1 and 12. Beyond that, Geissler does not teach an insulating supply conduit as taught by Applicants. It is noted that Geissler teaches the "flood tubes" and supply lines are made of plastic. However, this does not teach Applicants' invention as embodied in claims 5 and 14 which requires an insulating supply conduit in conjunction with a power source connected to the nozzle. The object of this aspect of Applicants' invention is to avoid current from the nozzle going back down the supply line. Since Geissler's nozzle is not connected to a power source, the teaching of Geissler is not applicable to Applicants' invention. Since EP '854 cannot supply the deficiencies of Geissler, claims 5 and 14 must be considered to be allowable over the cited combination of prior art.

In the present Office Action, the Examiner indicates that the teaching of Geissler is that conductive tubes affect the electrical field between the anode and the cathode and this would be the case regardless of whether the nozzle is connected to the power source. But, the Examiner still has not provided any rationale or motivation to teach (i) a power source connected to the nozzle and (ii) an insulating supply conduit to the nozzle. The supply conduit in Applicants' invention is not within the electric field between the anode and cathode so any teaching of Geissler with respect to the plastic flood tubes being made of plastic so as not to disturb the electric field between the anode and cathode would seem to be irrelevant with respect to Applicants' invention. Again, Applicants submit that the Examiner has failed to state a prima facie case of obviousness with respect to claims 5 and 14.

II. Claims 6, 7, 9 15, 16, 18, 21 and 22 have been rejected by the Examiner under 35 USC

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§103(a) as being unpatentable over EP '854 in view of Chandross et al. U.S. Patent 5,849,173 (hereafter "Chandross").

Inasmuch as claims 6, 7, 9, 15, 16, 18, 21 and 22 depend from claims 1 and 12, and since claims 1 and 12 are believed to be patentable, then claims 6, 7, 9, 15, 16, 18, 21 and 22 should be patentable as well.

In addition, claims 7, 16, 21 and 22 are believed to be independently patentable in that the Examiner has not stated a prima facie case of obviousness. It is noted that EP '854 fails to teach Applicants' claims 1 and 12. EP '854 in combination with Chandross does not teach Applicants' claims 7, 16, 21 and 22. Chandross discloses a concentration of TMAH applicable to electrolytic etching where the part to be etched is immersed in the etchant. Chandross admits that the concentration is not very critical (col. 4, lines 53-54). Applicants' invention, however, sprays the TMAH through a nozzle onto the workpiece and uses the TMAH to conduct electricity between the nozzle and the article to be cleaned. The concentration of TMAH is much more critical here.

In the present Office Action, the Examiner states that Applicants have not provided any support for the criticality of the TMAH concentrations and, further, that the combination of EP '854 and Chandross is appropriate since they are both concerned with the same endeavor, namely electrolytically removing material.

Applicants disagree. Electrolytic etching by immersion and by spraying are different processes which require different operating parameters. Electrolytic etching by spraying differs from electrolytic etching by immersion in two significant ways. With electrolytic etching by spraying, the spray has to have sufficient electrolyte concentration so as to maintain an electrical circuit through the spray and the workpiece is in contact with the spray for less time. As it is expected

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that the concentration of TMAH could differ in the two processes, the motivation for combining the teaching of EP'854 with Chandross is not clear and the Examiner has not provided a sufficient motivation. Accordingly, it is submitted that the Examiner has failed to state a prima facie case of obviousness with respect to claims 7, 16, 21 and 22. Thus, claims 7, 16, 21 and 22 are believed to be independently patentable.

III. Claims 8 and 17 have been rejected by the Examiner under 35 USC §103(a) as being unpatentable over EP '854 in view of Wee et al. U.S. Patent 6,383,303 (hereafter "Wee").

Inasmuch as claims 8 and 17 depend from claims 1 and 12, and since claims 1 and 12 are believed to be patentable, then claims 8 and 17 are believed to be patentable as well. No independent ground of patentability is asserted for claims 8 and 17 at this time.

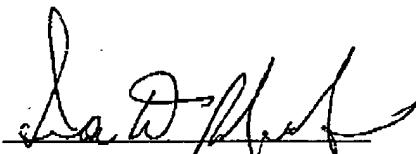
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Summary:

In view of all of the preceding remarks, it is submitted that all of claims 1 to 22 are in condition for allowance. If the Examiner finds this application deficient in any respect, the Examiner is invited to telephone the undersigned at the Examiner's earliest convenience to resolve such deficiency.

Respectfully Submitted,
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